

SEXUALLY TRANSMITTED DISEASE MORBIDITY

2000

WASHINGTON STATE



INFECTIOUS DISEASE AND REPRODUCTIVE HEALTH:
STD/TB SERVICES AND IDRH ASSESSMENT UNIT

SEXUALLY TRANSMITTED DISEASE MORBIDITY 2000

WASHINGTON STATE



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Sexually Transmitted Disease Morbidity ~ 2000
Washington State
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EXECUTIVE SUMMARY

The 2000 annual Sexually Transmitted Disease (STD) summary includes morbidity data and incidence rates for Washington State's legally reportable STDs. These include gonorrhea, chlamydia, syphilis, herpes simplex-initial genital infection and neonatal, nongonococcal urethritis (NGU), acute pelvic inflammatory disease (PID) (not caused by gonorrhea or chlamydia), chancroid, lymphogranuloma venereum (LGV) and granuloma inguinale (GI). Sexually transmitted diseases are the most commonly reported communicable diseases in Washington State.

Chlamydia

In 2000, chlamydia continues to be the most commonly reportable STD in Washington State. Reported cases totaled 13,066, yielding a statewide incidence rate of 224.5 per 100,000 population. Females continued to be selectively tested more frequently and, consequently, diagnosed at a higher rate than males. The statewide chlamydia incidence rate for females was 328.0 per 100,000, which was nearly three times the incidence rate for males—120.2 per 100,000. Chlamydia cases and rates have increased in calendar year 2000, though this increase may be the result of more sensitive testing methods rather than an actual increase in incidence rate.

Gonorrhea

In 2000, reported gonorrhea cases increased to 2,419 from an all-time low of 1,949 cases in 1998, yielding a statewide gonorrhea incidence rate of 41.6 per 100,000 population. Gonorrhea screening is universal in all public STD clinics in Washington State and the gender-specific incidence rates may accurately reflect true disease incidence. The female gonorrhea rate was 36.9 per 100,000 and the male gonorrhea rate was 46.3 per 100,000 for the state as a whole. The increase in the 2000 male gonorrhea rate (a 15 % increase from 1999) was attributable to an increase in the rate in Pierce, Kitsap and King counties and an ongoing gonorrhea outbreak among men who have sex with men (MSM) in King County.

Syphilis

Primary, secondary, and early latent cases of syphilis totaled 86 in 2000, a decrease of 8 cases from 1999. Sixty-six of the 86 early syphilis cases were reported in King County, where a two-year outbreak among HIV-positive MSM continues. The statewide primary syphilis rate was 1.1 per 100,000. When the cases of late latent/late syphilis are included in this calculation, the statewide syphilis rate rises to 2.9 per 100,000. The number of primary and secondary cases statewide was 66 in 2000, a decrease of 11 cases from 1999.

Other STDs

In 2000, 2,009 cases of initial genital herpes and one case of neonatal herpes were reported, yielding an incidence rate of 34.5 per 100,000 population. Among males, there were 1,114 new cases of NGU reported; among females, 240 new cases of acute PID (not attributable to chlamydial or gonococcal infection) were reported. NGU and PID are no longer legally reportable syndromes and are reported here for the last time. These data are of limited utility in that these conditions are considered to be significantly under-reported. One case of lymphogranuloma (LGV) was identified in 2000 and no cases of chancroid or granuloma inguinale (GI) were reported.

Data Sources, Methods and Limitations

Public and private health care providers complete confidential case reports, which are submitted to local health jurisdictions. These reports are subsequently forwarded to the Washington State Department of Health, STD/TB Services Section and are the primary data source for reported cases of sexually transmitted diseases. Chlamydia, gonorrhea, and syphilis require laboratory confirmation to be counted. Genital herpes, NGU and acute PID may be reported without laboratory confirmation.

A wide variety of persons and agencies submit confidential case reports and the quality and usefulness of specific data elements can vary widely. Information on race and ethnicity are often missing and should be considered unreliable in quantitative analysis. Other data are completely reported, e.g., provider of care, age, sex and county of residence. In 1998, the confidential database that houses STD case report information was modified to be dynamic, allowing for case report information to be corrected or changed as new information on identified cases becomes available. Because of this change, the statistics in this report are for STD case information known as of January 23, 2001.

Crude incidence rates (number of cases/population) were calculated on an annual basis per 100,000 persons. In this report the 2000 rates for all Washington counties were calculated by dividing the number of cases reported for that county in 2000 by the estimated 2000 county-specific population. Rates were not calculated for counties reporting five or fewer cases because the rate would be considered unreliable. Crude rates are used for the purposes of this report because age-adjusted rates may mask important trends and may result in over- or under-estimation of the true burden of disease.

Data Limitations - Clinically diagnosed cases of STDs (with laboratory confirmation) may be under-reported through this surveillance system. Presumptively diagnosed cases in some instances may not be completely reported, as is also the case with asymptomatic cases not presenting with an STD-related illness. However, clinical practice recommendations from the CDC state all bacterial STDs should receive laboratory confirmation. Depending upon diagnosing practices, completeness of reporting may vary by source of health care. Some items are known to be under-reported or misreported, e.g., race, ethnicity, and marital status. Care should be exercised in interpreting these data in light of known data limitations.

Guidelines to Prevent Misuse of Data

Ready access to data by persons unfamiliar with the sources or unacquainted with epidemiology and statistics may lead to misinterpretation or misrepresentation of information. This could result in inappropriate decision-making and potential misdirection of resources. The following guidelines may help prevent data misuse and should always be considered when reviewing data from any source:

1. Understand what you are looking at. What do the data cover? Do the data represent STD infections or persons with an STD? Do the numbers reflect new (incident) cases or

cumulative numbers of cases? Are trends presented appropriately, using the same criteria for the numerator and denominator over the period of investigation?

2. Know the limitations of the data source (see above). How is the information collected? How accurate and complete are the data? Are the data representative of a larger group or specific to a particular subset only?
3. Small increases and decreases in numbers can look large if the baseline numbers are also small. For example, if two cases of chlamydia are counted in a particular county in one year and three cases are counted in the next year, this is an increase of 50%. This may sound significant, but in reality a change of one case is not. Caution is warranted.
4. Look for consistencies with other sources of information. Results of an investigation are more believable if they are supported by similar findings from other known studies. This does not mean that new findings should be ignored, but they may deserve a little more attention in establishing their conclusions.

In summary, data should never be taken at surface value. They should be closely scrutinized, analyzed, and placed into context before any decisions are made. We encourage anyone with specific questions about how these data should be interpreted to contact the STD/TB Services Section at (360) 236 - 3460.

Glossary

Age-Specific Incidence Rate - An age-specific rate is a rate in which the number of events and population at risk are restricted to an age group [e.g., the numerator (reported cases) and the denominator (mid-year population at risk) refer to a specific age group]. Age-specific rates are useful in comparing age-defined subgroups when rates are strongly age-dependent, as is the case with sexually transmitted diseases.

Case - An episode of disease. If a person is diagnosed with more than one STD in a year, each infection is counted as a separate case.

Confidence Interval - The confidence interval (CI) evaluates the influence of chance or random variability on the statistical estimate or rate (Selvin, 1996). Surveillance data, even based on complete counts, may be affected by chance. If variation in the occurrence of the disease is random and not affected by differences in diagnosing or reporting, then confidence intervals may be calculated to facilitate comparisons over time, between groups, or between geographic locations (e.g., counties). In this situation, calculated confidence intervals should be based on a Poisson probability distribution. In general, if confidence intervals for two separate rates overlap, there is no statistically significant difference between the two rates.

Narrow confidence intervals for rates indicate with greater certainty that the calculated rate is a reliable approximation of the true rate. Conversely, wide confidence intervals signal greater variability and less certainty that the calculated rate is a good estimate of the true rate.

Crude Rate - The number of events, e.g., reported cases, divided by the total mid-year population. This rate is not “adjusted” or “standardized” for different population discrepancies. In general, no rates should be calculated if the number of events is fewer than five because the rates are considered unstable. Incidence rates allow comparisons between two or more populations by standardizing the denominator and are the most appropriate statistic to use when investigating differences between groups.

Denominator - The lower portion of a fraction used to calculate a rate or ratio; usually, this is the mid-year population. The source for denominator data used in this report was: 2000 Population Estimates and Projections: Department of Social and Health Services, Washington State Adjusted Population Estimates, April, 1999

Numerator - The upper portion of a fraction used to calculate a rate or a ratio, e.g., new cases identified and submitted by providers to local health jurisdictions and forwarded to the State Department of Health, STD/TB Services Section.

Race and Ethnicity - The STD confidential case report includes race and ethnicity as two separate categories. Race options include White, Black, Asian/Pacific Islander, American Indian/Alaska Native, and Other/Unknown. Ethnicity options include Hispanic, Non-Hispanic, and Unknown. Following the enumeration technique of the United States Census Bureau and the Washington State Center for Health Statistics, race and ethnicity are counted separately. For example, if a case report indicates “White” and “Hispanic”, the case is counted both as White and as Hispanic. However, historical practice in disease surveillance by the Centers for Disease Control and Prevention often conflates Hispanic as a racial category. In light of this difference, care must be taken in comparing Washington State data with national or other state data.

VISTA - A menu-driven data analysis program developed for public health assessment by Public Health, Seattle-King County.

CHLAMYDIA

Chlamydia trachomatis is the most commonly reported bacterial STD in the United States. New estimates indicate approximately 3 million new infections each year (Kaiser Family Foundation, 1998), of which only a fraction, 660,000 were reported to CDC in 1999. Up to 75% of chlamydia infections in women, and many in men are asymptomatic, leaving many infected individuals with little reason to seek screening and treatment. Comprehensive screening and treatment of infected individuals have been shown to significantly reduce the prevalence of chlamydia infections.

Since 1988, Washington State has participated in chlamydia screening and prevalence monitoring activities through the federal Infertility Prevention Project (IPP). All women attending STD clinics, and women seeking reproductive health care in other facilities who meet selective screening criteria, are the populations targeted for chlamydia screening. Genital tract chlamydia infections are a major cause of pelvic inflammatory disease (PID), ectopic pregnancy and infertility among women; thus IPP is directed specifically at the female population. Recent efforts at improving the standard of care for male partners of infected women have resulted in increased reporting of male cases. A more sensitive testing method for detecting chlamydia infection in cervical specimens from women and in urine samples from men has also been used in Washington State, which may have resulted in elevated reporting of cases.

State-Level Chlamydia Trends

Figure 1 reports the number of chlamydia cases and the calculated incidence rate for Washington State. After nearly a decade of decline, reported chlamydia cases have increased 41.5% and calculated rates have increased 34.1% from 1996 to 2000. Several factors may contribute to the observed increase, in approximate order of significance:

- More sensitive laboratory techniques
- Increase in routine screening and partner referral
- Improved STD surveillance and reporting methods
- Increase in sexual-risk behaviors

Though the number and rate of chlamydia infection has increased over the last several years, the incidence rate for Washington State remains below the most recent national incidence rate of 254.1 per 100,000 (CDC, 1999).

Figure 2 presents the age-specific incidence rate by gender for chlamydia cases reported in Washington State in 2000. Of immediate note in this figure are the disproportionate incidence rates among younger women:

- Peak female age-specific rates in 15-19 year olds
- Peak male age-specific incidence in 20-24 year olds
- 70.8% of all cases reported in the 15-24 age group
- Increase from 1999 noted primarily in males 20-29 and females 15-24

Several factors contribute to this pattern, including potentially selective screening of young women and a higher incidence of sexual activity in this age group. The overall rate of chlamydia among women is observed to be 328.0 per 100,000 while the male rate is almost three times less at 120.2 per 100,000. Men diagnosed with nongonococcal urethritis are often treated presumptively and no laboratory tests are performed. Laboratory confirmation of chlamydia infection would automatically trigger a report to the local health jurisdiction and the Department of Health. For this reason, chlamydia may be significantly under-reported among males. In light of this, and the well-documented disparity in screening males versus females in reproductive health settings, the true chlamydia morbidity may be much closer to 1:1 for males and females.

- The trend in chlamydia incidence rates by race and Hispanic origin are shown in **Figure 3**. Decreases are noted in 2000 for Native Americans/Alaska Natives and those of Hispanic origin. Rates have increased for Blacks and Asians and remained stable for Whites. It should be noted here that direct comparison between race and Hispanic origin is not possible in that these are not mutually exclusive categories (e.g., cases can be counted as Hispanic *and* White, or Hispanic *and* Black, etc.).

Because of a lack of true biological basis and standardization of methods of racial/ethnic classification in disease surveillance, caution is advised when interpreting incidence rates by race or ethnicity. Race and ethnicity may also mask other potentially significant ecological markers of health status such as socio-economic strata or geographic barriers to health care access.

Additionally, a significant proportion of cases are reported without race and ethnicity information. However, a standard sensitivity analysis of chlamydia reports, assuming the unlikely event that all cases missing race information are alternately either White, Black, Asian/Pacific Islander, or Native American, was performed to generate a ‘missing values’ interval around the raw point estimate. Comparison of these intervals yielded identical rankings by race as those presented in **Figure 3** with respect to white vs. non-white populations, however it is possible that the relative ranking of Native American and Asian cases may be inverted within the interval range.

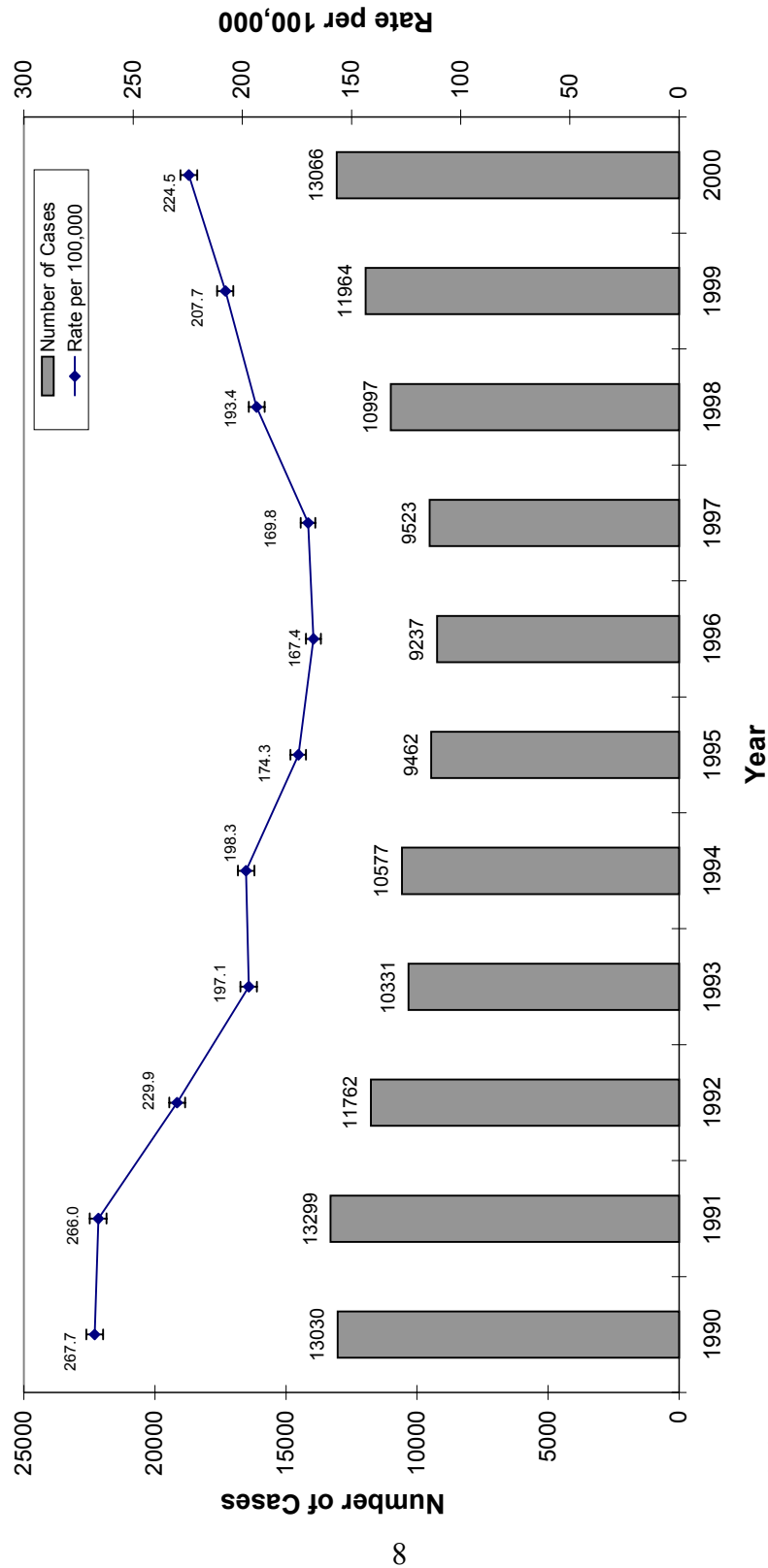
County-Level Chlamydia Trends

To assess the burden of disease and compare this burden across counties of differing population sizes, county-specific incidence rates were calculated (**Figure 4**). Thirty-five of Washington’s 39 counties reported at least five cases of chlamydia. **Figure 5** shows these county-specific incidence rates ranked from highest to lowest.

Chlamydia incidence rates for males and females by county are presented in **Table 1**, page 27. The largest number of chlamydia cases (4,495) was reported by King County. King County reported the largest number of male cases (1,490) and the highest male incidence rate at 176.1 per 100,000. King County also reported the largest number of female chlamydia cases (3,005), yet the incidence rate of 350.2 per 100,000 for females was ranked sixth among

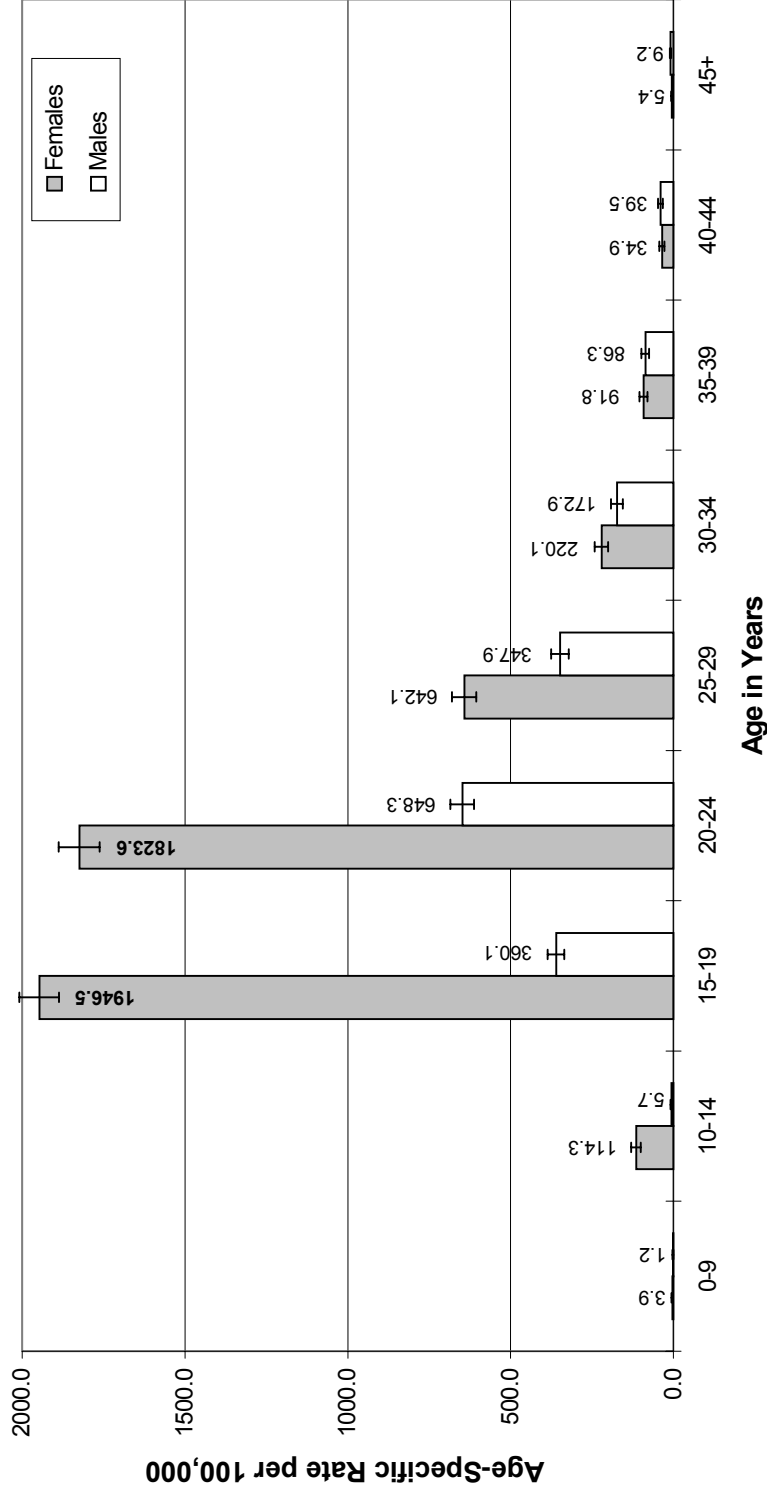
counties in Washington State. The highest county-specific incidence rate for chlamydia among women was Franklin County with a rate of 670.8 per 100,000. Due to under-diagnosing, under-reporting, and the asymptomatic nature of the disease, chlamydia incidence rates are considered conservative. These assumptions make county-to-county comparisons generally unreliable, especially among counties with relatively small populations.

Figure 1. Reported Chlamydia Cases and Incidence Rates*, Washington State, 1990-2000



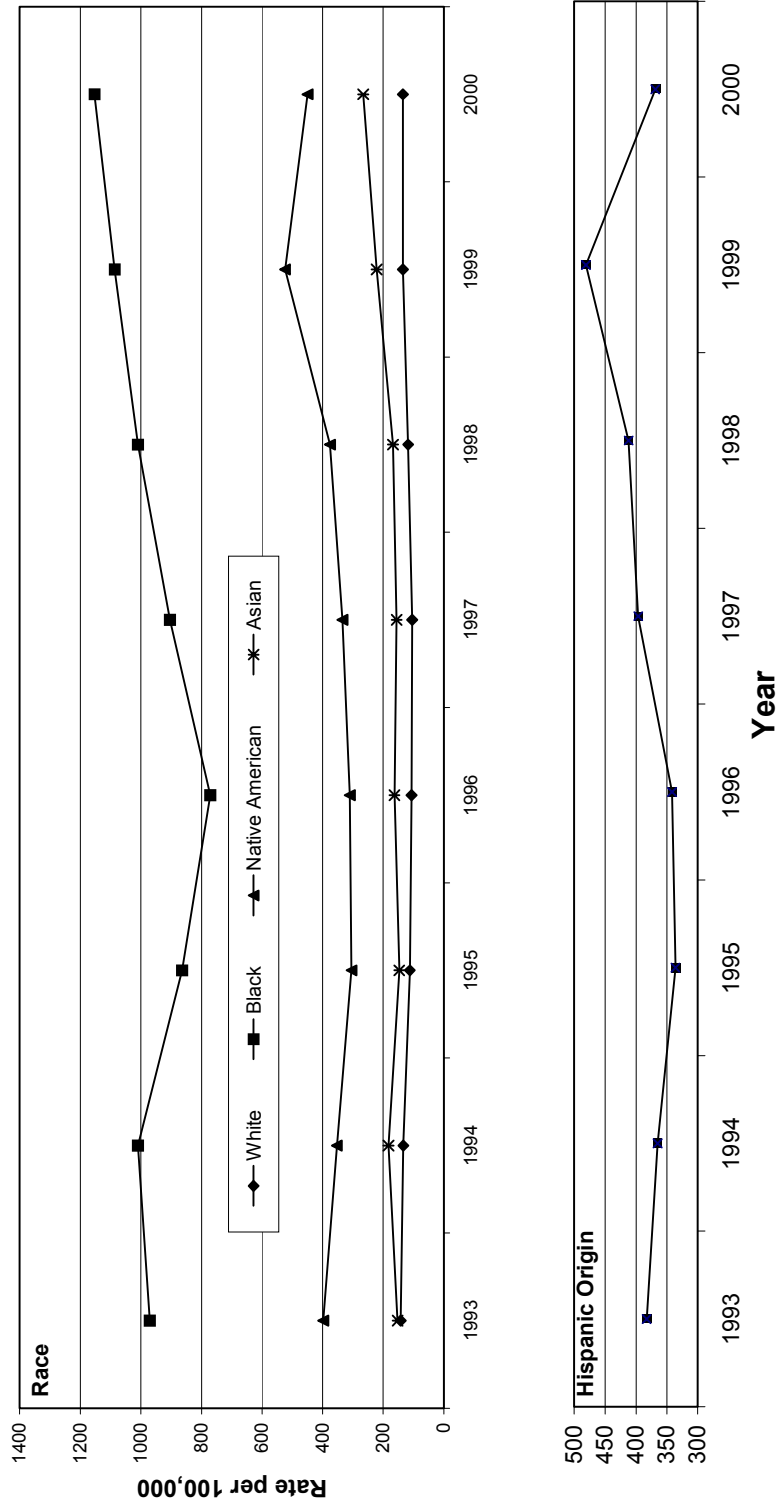
I—I = Confidence Interval
 95% Confidence Intervals (CI) evaluate the influence of chance on the rate.
 * This is the crude rate, not adjusted for age.

Figure 2. Age-Specific Chlamydia Incidence Rates* by Gender, Washington State, 2000



— = Confidence Interval
 95% Confidence Intervals (CI) evaluate the influence of chance on the rate.
 * Age missing for 53 (1.5%) male cases, 148 (1.5%) female cases and excluded from calculated rate.

Figure 3. Chlamydia Incidence Rates* by Race, Washington State, 1993-2000**



* This is the crude rate, not adjusted for age. Race data missing for 17.8% of cases; ethnicity data missing for 18.5% of cases.
 ** Because of missing data, comparisons between races/ethnicities is not advised.

**Figure 4. Chlamydia Incidence Rates By County
Washington State/ 2000**

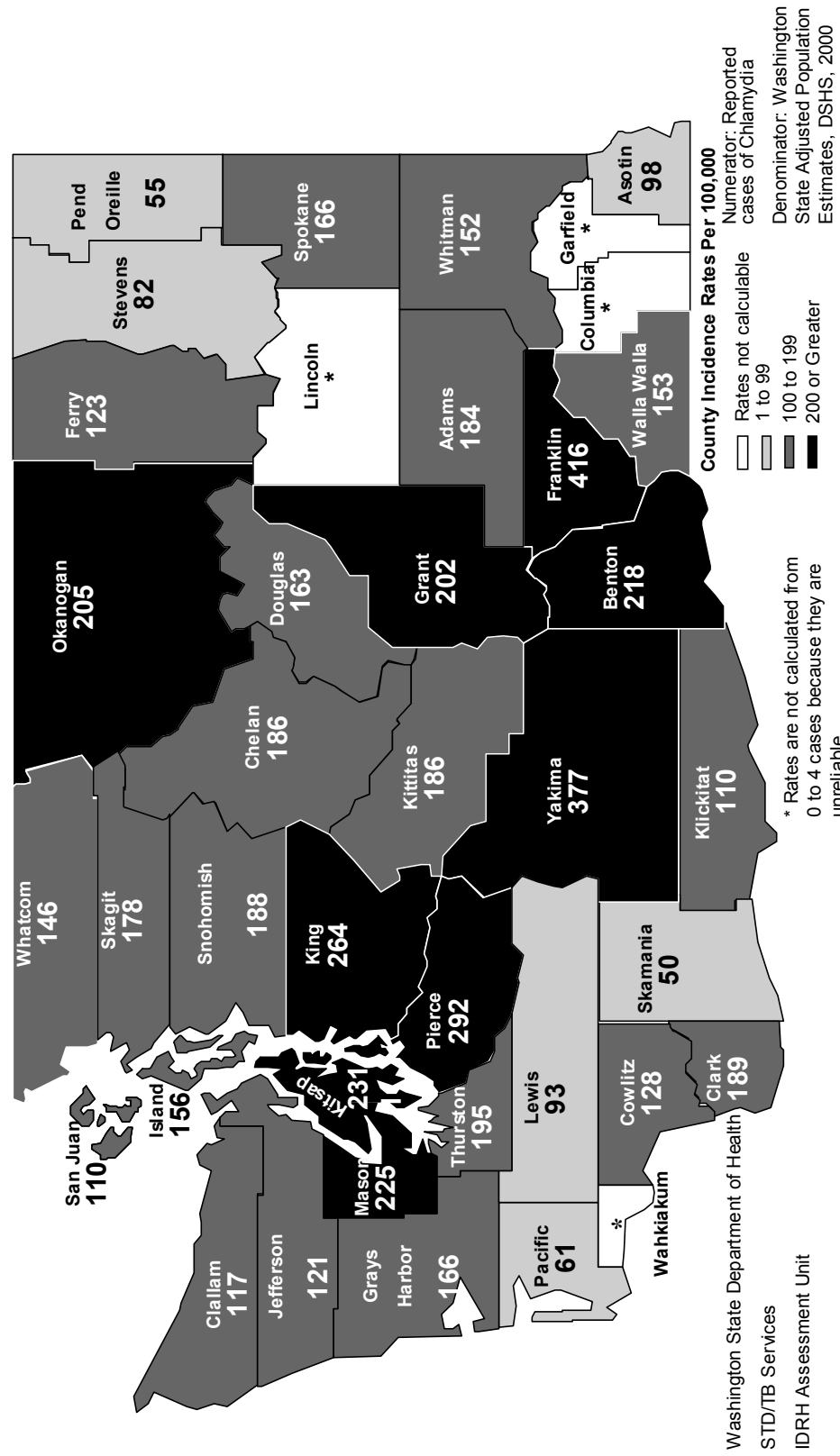
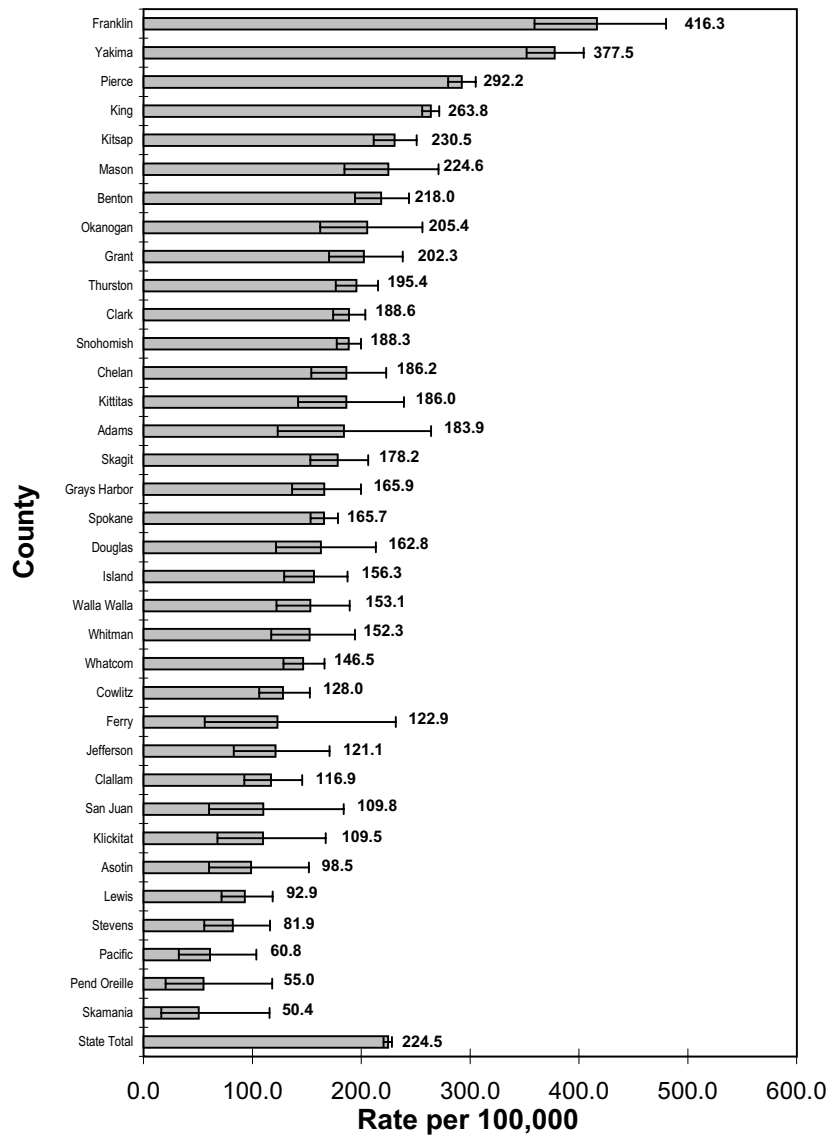


Figure 5. Chlamydia Incidence Rates* by County, (95% CI) Washington State, 2000
Ranked from Highest to Lowest**



* This is the crude rate, not adjusted for age. Counties with fewer than 5 cases not shown. — = Confidence Interval

Numerator: Reported cases of chlamydia.

Denominator: Washington State Adjusted Population Estimates, DSHS, April 1999.

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GONORRHEA

Infections due to *Neisseria gonorrhoeae* remain a major cause of morbidity in the United States. Negative consequences of gonorrhea infection may include Pelvic Inflammatory Disease (PID), tubal infertility, ectopic pregnancy, and chronic pelvic pain. Epidemiologic studies provide strong evidence that gonococcal infections may facilitate HIV transmission as well (Fleming, 1999).

State-Level Gonorrhea Trends

National gonorrhea rates have precipitously declined from 1974 to the present. The United States, as a whole, is on the way to achieving the Healthy People Year 2010 goal of 19 per 100,000 for gonorrhea incidence. Paralleling national trends, the Washington State gonorrhea incidence, as seen in **Figure 6**, exhibits the following significant trends or characteristics:

- Gonorrhea incidence has fallen 55.8% from 1990 to 2000
- Rates have increased 21% from a low of 34.3 per 100,000 in 1998
- Most gonorrhea cases are symptomatic and seek medical care, reported cases are considered to be an accurate reflection of true disease incidence
- Observed gonorrhea rates have remained consistently higher among African Americans than any other racial group
- Incidence is highest in the 20 – 24 age group for both males and females
- A slight statewide increase from 1998 to 2000 may be influenced by documented increases in gonorrhea infection among men-who-have-sex-with-men (MSM) in Western Washington.

In the last quarter of 1999 and first quarter of 2000 an observed increase in gonorrhea rates in Pierce County was investigated and presumed to be an artifact of improved surveillance and screening. However, despite a decrease of 15% from 89.3 per 100,000 in 1999 to 75.6 in 2000, Pierce County continues to rank highest in observed gonorrhea rate for 2000.

An ongoing outbreak of gonorrhea beginning in 1998 among MSM in Seattle-King County has also helped to widen the incidence rate gap between the genders by increasing the number of cases of gonorrhea among men. Gonococcal infections in MSM reported by the PHSKC STD clinic more than doubled from 1997 to 1998 and 19% of those cases were also co-infected with HIV. It has been estimated that the rate of gonococcal infection in MSM in King County increased from 180 per 100,000 in 1997 to 363 per 100,000 in 2000 (projected from data through 9/2000) in contrast to the rate among presumed heterosexuals in King County of 57 per 100,000 (Whittington, W, 12/2000).

The age distribution of gonorrhea also differs between genders and age groups as seen in **Figure 7**. Nationally, gonorrhea incidence for females peaks among 15-19 year olds and peaks for males among 20-24 year olds. For Washington State the peak incidence rate for both males and females is observed in the 20-24 year old age group. However, the greatest incidence of disease among females, 66% of total morbidity, is among 15-24 year olds while for males the burden of disease is distributed more evenly among those 25 and older.

Males had a higher gonorrhea incidence rate (46.3 per 100,000) than females in 2000 (36.9 per 100,000). Factors contributing to the different distribution of gonorrhea incidence in different age groups among men and women are the presumed age gap between men and women in sexual relationships as well as the previously noted outbreak among MSM whose median reported age was 30 (*ibid*).

In Washington State, decreases in gonorrhea incidence have been seen across racial and ethnic groups for 1993 to 1998 (**Figure 8**). Rates have remained relatively stable at approximately the same level through the most recent 4 report years. Though the decrease observed since 1993 is remarkable, racial disparities in disease burden clearly continue to exist, in contrast to chlamydia infection (**Figure 3**), which remains widely prevalent in all races and among those of Hispanic origin. This is due to duration of infectiousness and the asymptomatic nature of the disease. Gonococcal infection appears to have retreated deeper into core populations. In Washington State, 16.5% of reported cases of gonorrhea had missing race data and 20.7% of case reports were missing ethnicity data. Caution is ordinarily advised when interpreting incidence rates by race when a significant portion of cases are reported without this information.

However, a standard sensitivity analysis of gonorrhea reports, assuming the unlikely event that all cases missing race information are alternately either White, Black, Asian/Pacific Islander, or Native American, was performed to generate a ‘missing values’ interval around the raw point estimate. Comparison of these intervals yielded identical rankings by race as those presented in **Figure 8** with respect to white vs. non-white populations, however it is possible that the relative ranking of Whites, Native American and Asian cases may be inverted within the interval range.

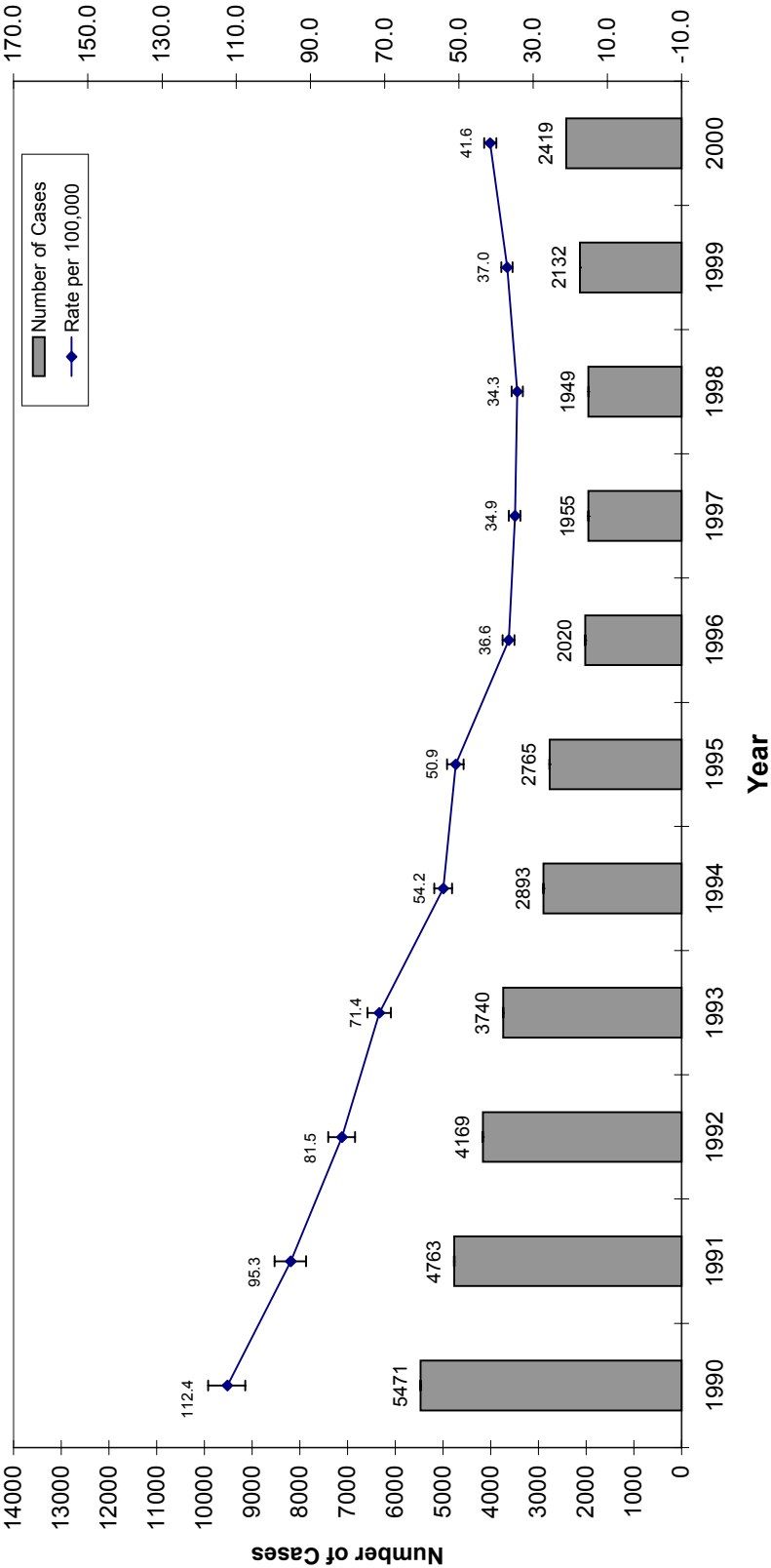
County-Level Gonorrhea Trends

The distribution of gonorrhea not only differs by gender, age, and race, as noted above, it also differs by geography. At the county-level, gonorrhea incidence impacts dense urban versus rural counties differently (**Figures 9 & 10**):

- Highest gonorrhea incidence rate is observed for Pierce County, 75.6 per 100,000
- King County has second highest observed rate at 71.7 per 100,000
- Kitsap and Yakima counties also exhibit rates higher than the statewide incidence rate of 41.6 per 100,000

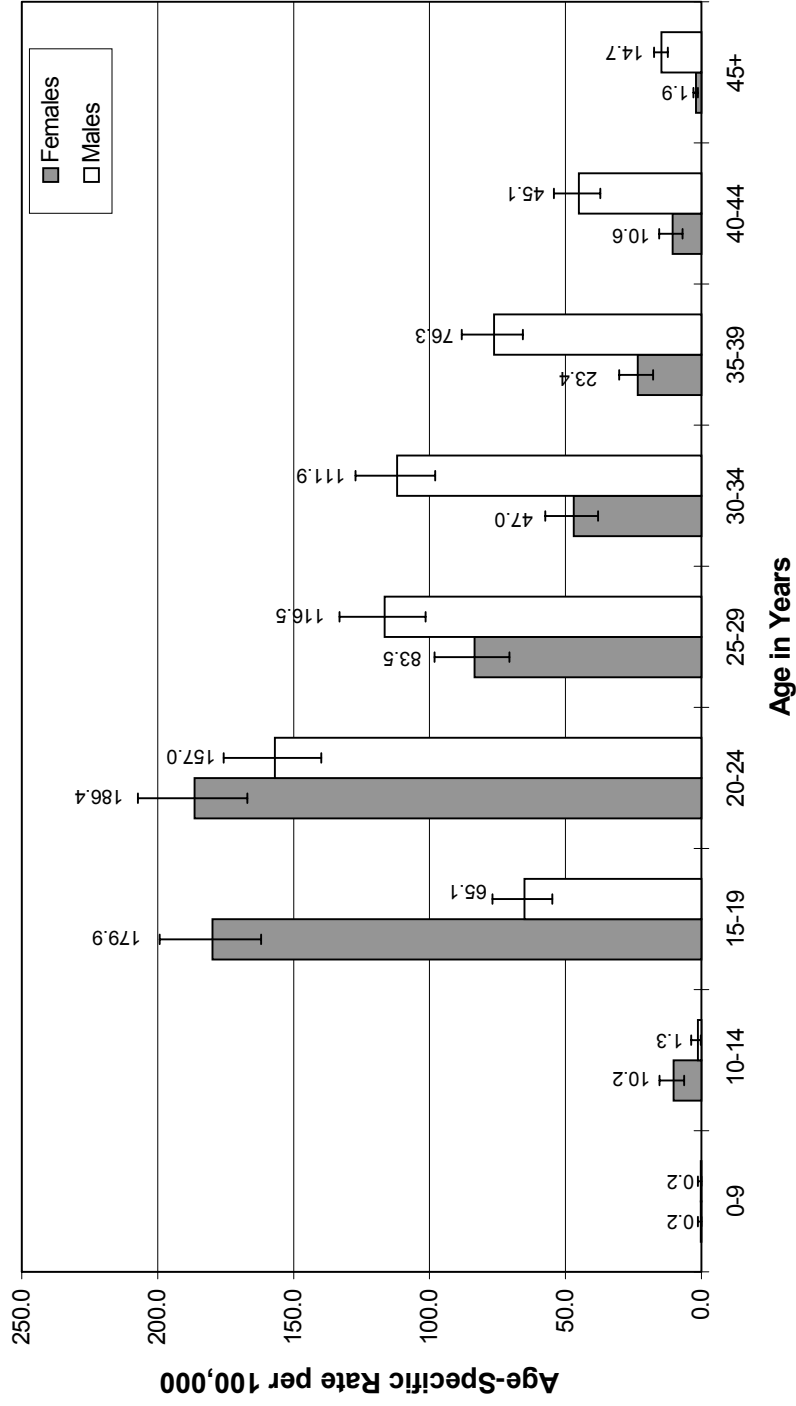
To further illustrate the differences in gonorrhea disease burden across counties, gender-specific and age-specific rates were calculated. Gonorrhea incidence rates for males and females by county are presented in **Table 3**, page 29. For most counties in Washington State, there were either no gonorrhea cases or too few cases to calculate a stable incidence rate by gender. Among the 11 counties with enough cases to allow calculation of a gender-specific incidence rate, Pierce County has the highest rates for females at 77.8 per 100,000 and King County had the highest rate among males at 91.5 per 100,000.

Figure 6. Reported Gonorrhea Cases and Incidence Rates* (95% CI), Washington State, 1990-2000**



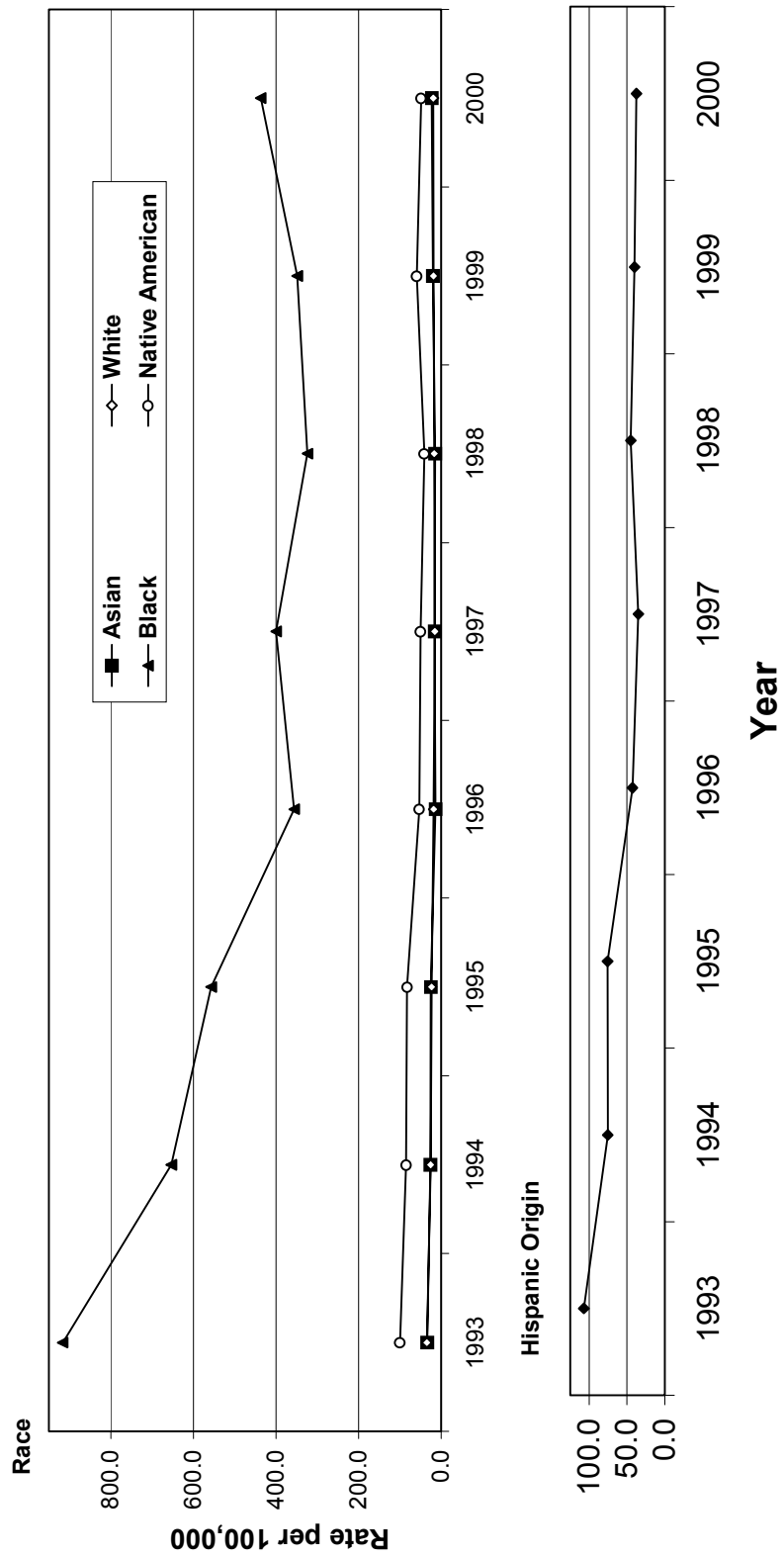
* This is the crude rate, not adjusted for age. — = Confidence Interval
 ** 95% Confidence Intervals (CI) evaluate the influence of chance on the rate.

Figure 7. Age-Specific Gonorrhea Rates* (95% CI) by Gender, Washington State, 2000**



* Age missing for 11 (1.0%) female cases and 12 (0.9%) male cases and excluded from calculated rate.
 ** 95% Confidence Intervals (CI) evaluate the influence of chance on the rate. — = Confidence Interval

Figure 8. Gonorrhea Incidence Rates* by Race/Ethnicity**, Washington State, 1993-2000



* This is the crude rate, not adjusted for age. Race data missing for 16.5% of cases; ethnicity data missing for 20.7% of cases. Because of missing data, comparisons between races/ethnicities are not advised.
** Race and ethnicity counted separately, e.g. a case can be both "White" and "Hispanic."

Washington State/ 2000

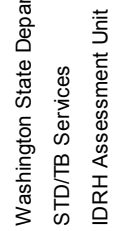
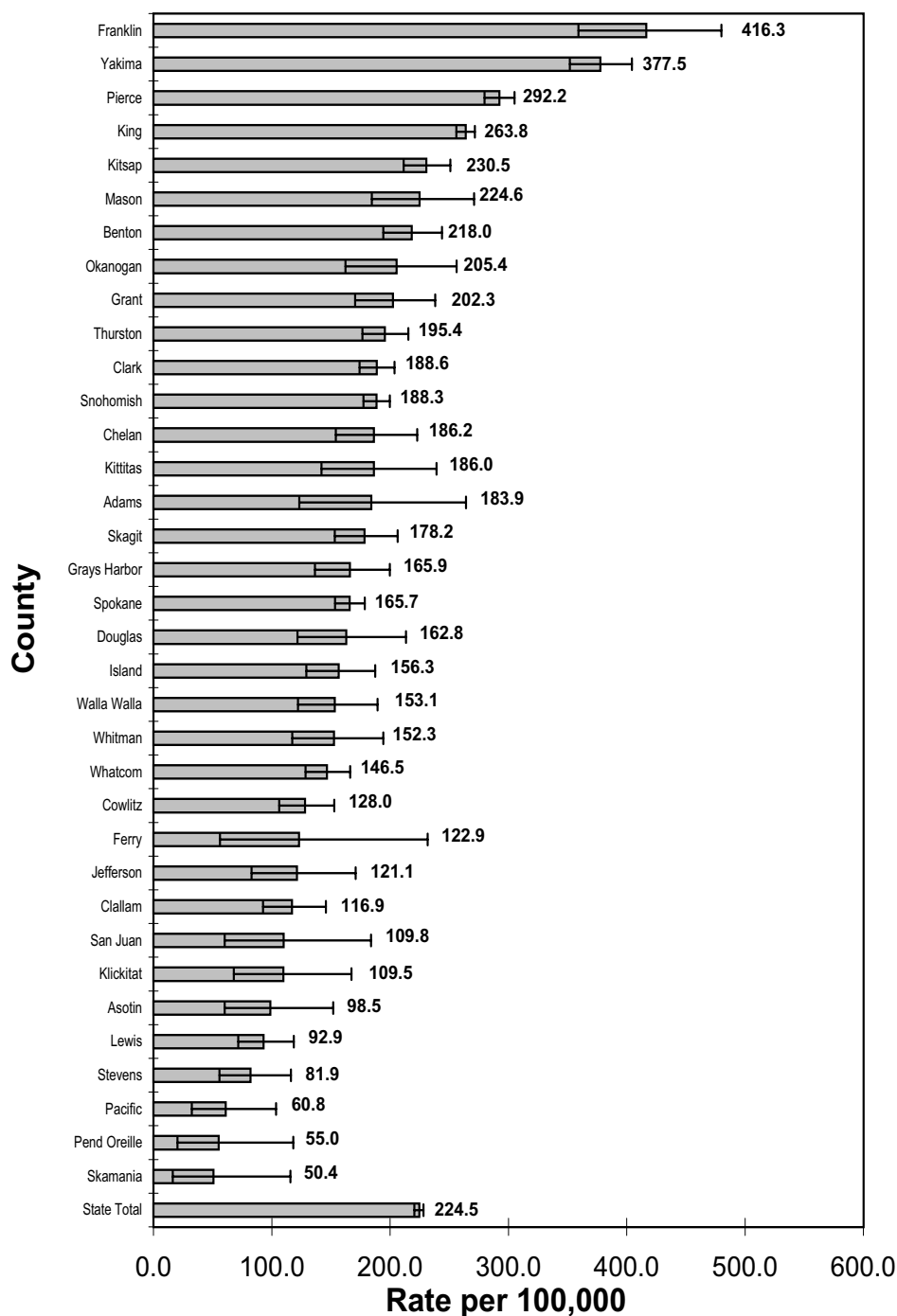


Figure 5. Chlamydia Incidence Rates* by County, (95% CI) Washington State, 2000
Ranked from Highest to Lowest**



* This is the crude rate, not adjusted for age. Counties with fewer than 5 cases not shown. — = Confidence Interval

Numerator: Reported cases of chlamydia.

Denominator: Washington State Adjusted Population Estimates, DSHS, April 1999.

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SYPHILIS

Syphilis is caused by infection with the spirochete *Treponema pallidum* and has four distinct stages - primary, secondary, latent and late latent. Primary syphilis infection is characterized by a painless genital ulcer that will resolve spontaneously without treatment. Secondary infection most commonly presents as a rash of varying duration which may be recurrent. An infected person who does not get treatment may infect others during the first two stages (primary, secondary). Early latent syphilis is defined as an infection that is less than one year old and can be perinatally infectious or if a secondary relapse occurs. Trans-placental transmission of syphilis is a potential cause of fetal loss and congenital abnormalities. In the late latent stage, untreated syphilis, although not contagious, can cause serious heart abnormalities, mental disorders, blindness, other neurological problems and death. All four stages of syphilis were reported in Washington State in the current report year (**Figure 11**), including one case of congenital syphilis diagnosed in an infant adopted from abroad.

State-Level Syphilis Trends

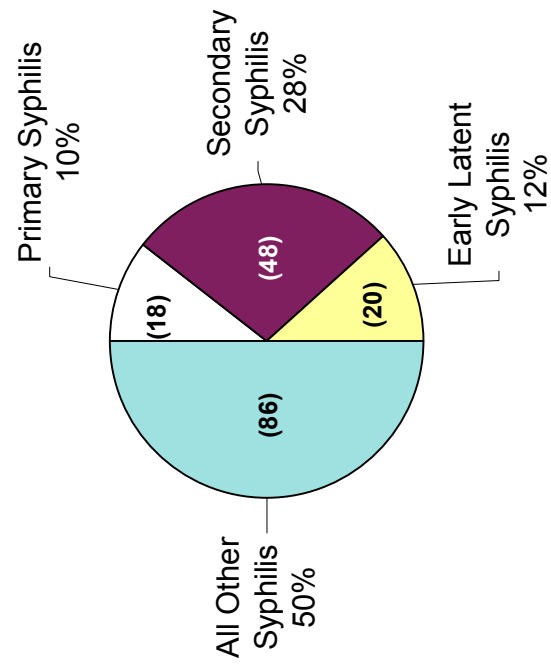
- Incidence rate for all stages of disease has decreased 16% since 1999 from 3.5 per 100,000 to 3.0 (95% CI, 2.6 – 3.5) per 100,000 in 2000
- An outbreak of syphilis among men who have sex with men in King County is continuing
- Lower proportion of Early Latent and Primary syphilis highlights the importance of screening and education to at-risk communities

Slightly more than 68% of the total syphilis incidence in Washington State in 2000 was reported from King County (**Figure 12, 13**). This pattern has been observed since 1997 in contrast to previous report years where a greater proportion of cases were reported from counties other than King County. There continues to be a large disparity between male and female rates (**Figure 14**), which strongly suggests that the ongoing outbreak in Seattle-King County is different than previous outbreaks observed in the early 1990s, which were determined to be drug-related.

In 1996, King County reported only a single case of P & S syphilis. In 2000, 50 cases of P & S syphilis were reported and total incidence had increased to 116 cases. This outbreak continues to be centered primarily among men who have sex with men. Public Health Seattle King County (PHSKC) has estimated that the annual rate of infectious syphilis among MSM increased from zero in 1996 to 200 per 100,000 for the 1999 report year. The annual infectious syphilis rate among HIV infected MSM was estimated at 1500 per 100,000 (MMWR, 1999). More revealing, two thirds of these cases were known to be HIV infected at the time of their syphilis diagnosis and most were in care for HIV at the time of their syphilis infection. It has been proposed that the transmission behaviors responsible for this outbreak have occurred primarily in anonymous sex settings. These findings strongly reinforce the importance of routine STD screening for MSM in the primary care setting and an open dialog between patients and providers on the continuing risks posed by unprotected sexual activity.

Reported cases of P & S and Early Latent syphilis have risen sharply to 86 reported in 2000 from a low of 14 cases reported in 1996. Of note in **Figure 11** is the relatively high proportion of secondary stage disease versus primary and early latent. The expected ratio would be approximately one to one in the relationship between P & S and Early Latent. The fact that there is a larger proportion of secondary disease suggests, that for reasons discussed above, there continues to be an unrecognized burden of disease and that continued surveillance, education and sustainable interventions are necessary for the control of infectious syphilis.

Figure 11. Syphilis Cases by Disease Stage*, Washington State, 2000



*Reported syphilis cases, n=172

**Figure 12. Number of Primary and Secondary Syphilis Cases By County
Washington State/ 2000**

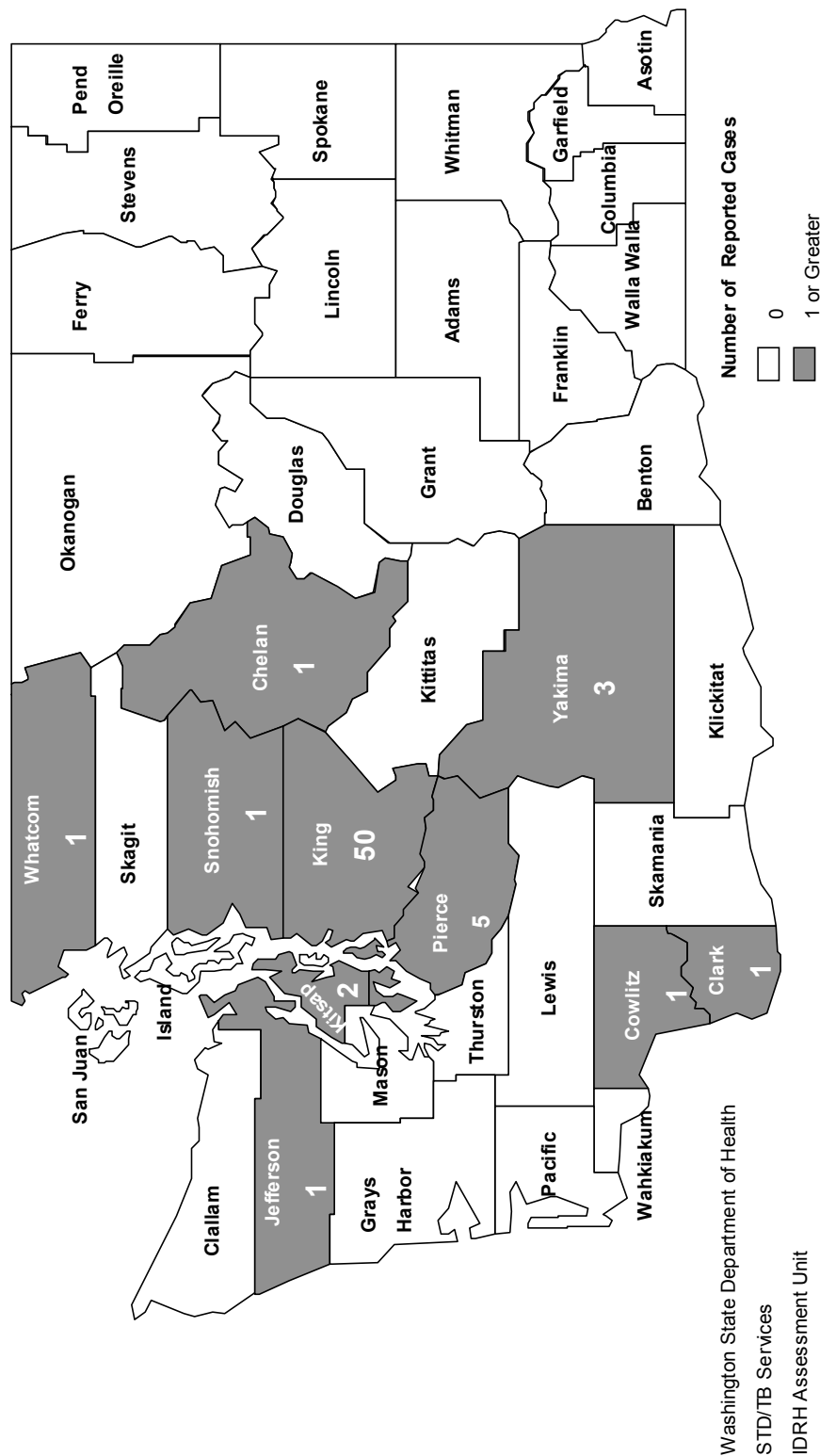
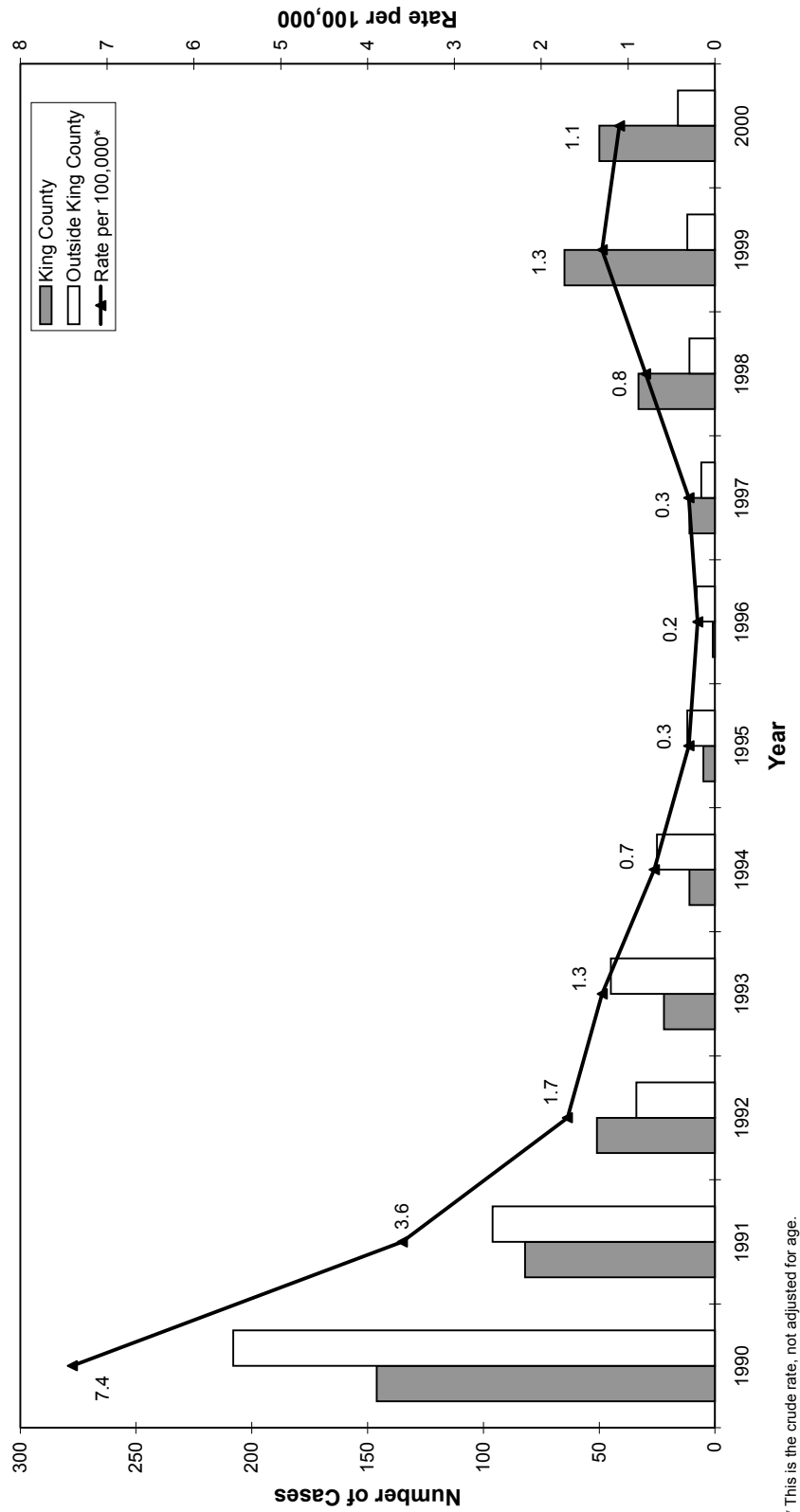
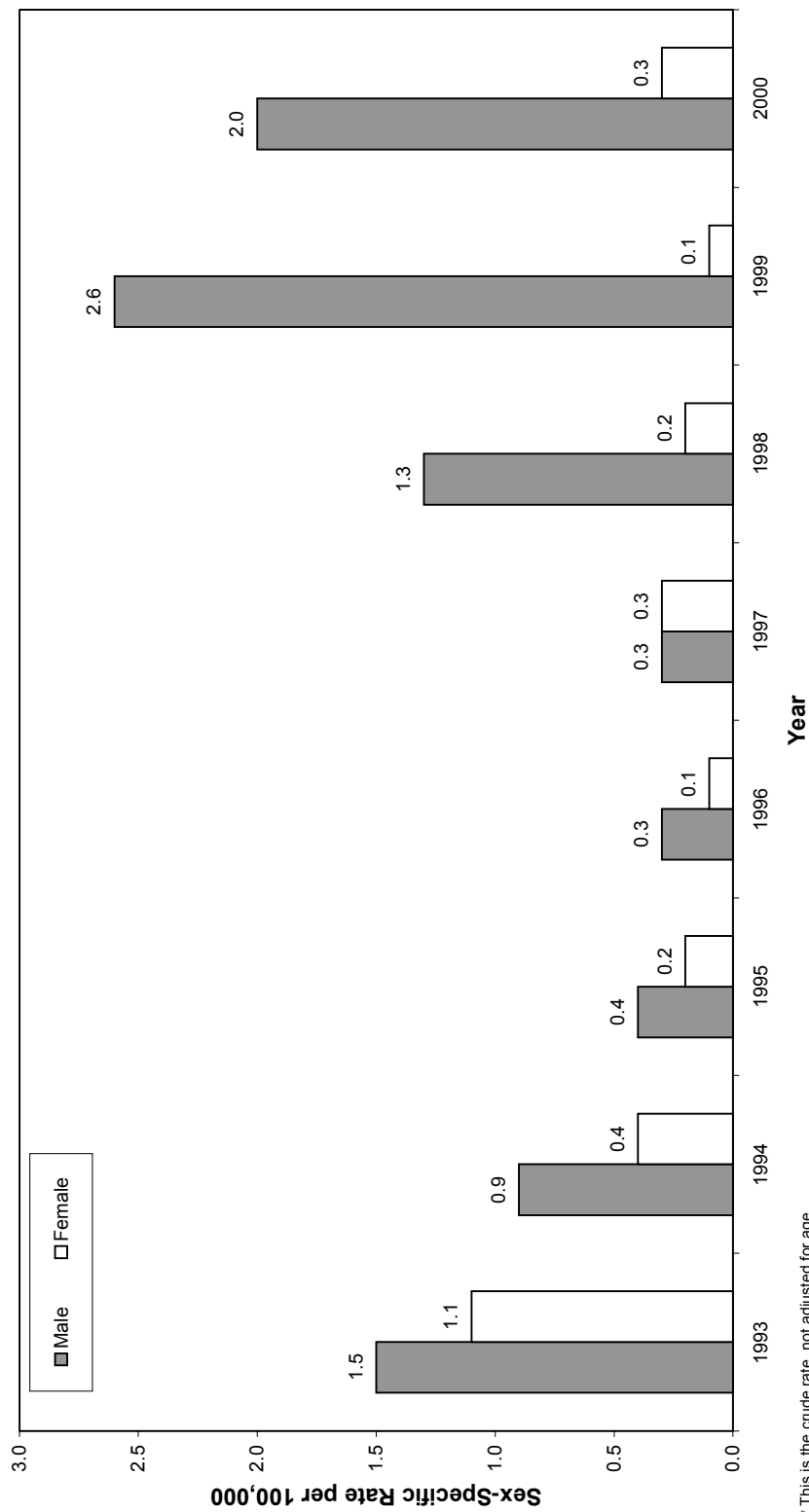


Figure 13. Reported Primary & Secondary Syphilis Cases and Incidence Rates*, King County vs. Washington State, 1990-2000



**Figure 14. Primary & Secondary Syphilis Incidence Rates*,
Males vs. Females, Washington State, 1993-2000**



* This is the crude rate, not adjusted for age.

OTHER STDs

In addition to chlamydia, gonorrhea, and syphilis there are six additional STDs that are currently reportable to the state Department of Health. Initial genital herpes infection, nongonococcal urethritis (NGU), acute pelvic inflammatory disease (PID), chancroid, lymphogranuloma venereum (LGV), and granuloma inguinale (GI) currently require reporting by health care providers. PID and NGU have been removed from the list of reportable conditions and will be reported in this Morbidity Report for the last time.

Nongonococcal Urethritis (NGU) and Pelvic Inflammatory Disease (PID)

There are two gender-specific STDs, both syndromes, previously reportable in Washington State - NGU for men and acute PID for women. NGU cases totaled 1,114 in 2000 with an estimated incidence rate of 38.4 per 100,000 males. The statewide acute PID incidence rate for females was 8.2 per 100,000 (240 cases). Similar to other STDs in Washington State, NGU and acute PID cases are concentrated in the large, urban population centers of the state—King, Pierce, Snohomish, Kitsap, and Spokane counties (**Table 5**). Both diseases are considered to be under-diagnosed and under-reported; therefore, caution should be used when interpreting these data. Both conditions have been removed from the reporting requirement and are summarized here for the last time.

Genital Herpes, Initial Infection

Washington State is one of a handful of states that has reporting of genital herpes. Only the initial infection is tracked in the state surveillance system. In 2000, 2,009 cases of initial herpes infection and one case of neonatal herpes were reported (34.5 per 100,000 persons). Unlike chlamydia and gonorrhea, a suspected herpes infection does not require laboratory confirmation in order for the case to be reported to the state health department. Given recent CDC estimates of genital herpes prevalence in the United States (CDC, 1999), cases of initial genital herpes reported in Washington State are probably an underestimation of true incidence.

Others

Chancroid, LGV, and GI are very rare STDs. Only 16 states reported any cases of chancroid in 1999, with three states (New York, South Carolina & Texas) reporting 72% of the total 143 cases. Two chancroid cases were reported in Washington State in 1997, one in 1998, and no cases have been reported since that time. One case of LGV was reported in 2000 and no cases of GI have been reported.

**STATE OF WASHINGTON
STD MORBIDITY REPORT - 2000
REPORTED CHLAMYDIA CASES AND INCIDENCE RATES
BY SEX AND COUNTY**

Table 1

COUNTY	2000 POPLUATION		CHLAMYDIA			
	MALE	FEMALE	MALE	RATE/100,000	FEMALE	RATE/100,000
Adams	7,921	7,847	3	*	26	331
Asotin	9,768	10,540	3	*	17	161
Benton	69,463	70,914	43	62	263	371
Chelan	31,253	32,116	15	48	103	321
Clallam	33,559	33,992	24	72	55	162
Clark	168,759	173,851	171	101	475	273
Columbia	2,035	2,092	0	*	4	*
Cowlitz	47,293	48,013	23	49	99	206
Douglas	15,961	15,974	10	63	42	263
Ferry	3,782	3,543	3	*	6	169
Franklin	23,186	22,212	40	173	149	671
Garfield	1,159	1,184	0	*	1	*
Grant	35,516	35,184	23	65	120	341
Grays Harbor	33,370	33,542	20	60	91	271
Island	38,494	35,702	33	86	83	232
Jefferson	13,243	13,177	5	38	27	205
King	846,239	857,978	1,490	176	3,005	350
Kitsap	118,469	114,052	146	123	390	342
Kittitas	15,955	16,295	13	81	47	288
Klickitat	9,613	9,562	3	*	18	188
Lewis	34,049	34,809	14	41	50	144
Lincoln	4,828	4,813	1	*	1	*
Mason	24,748	23,781	35	141	74	311
Okanogan	19,143	18,836	12	63	66	350
Pacific	10,570	10,806	3	*	10	93
Pend Oreille	5,423	5,481	1	*	5	91
Pierce	357,037	352,409	589	165	1,484	421
San Juan	6,362	6,383	4	*	10	157
Skagit	49,826	51,162	34	68	146	285
Skamania	5,008	4,918	1	*	4	*
Snohomish	295,481	296,652	287	97	828	279
Spokane	204,695	210,538	139	68	549	261
Stevens	18,892	18,969	6	32	25	132
Thurston	100,428	104,824	80	80	321	306
Wahkiakum	1,901	1,964	1	*	3	*
Walla Walla	27,982	26,876	26	93	58	216
Whatcom	80,216	82,249	34	42	204	248
Whitman	21,659	20,375	22	102	42	206
Yakima	105,966	108,088	127	120	681	630
STATE TOTAL	2,899,252	2,921,703	3,484	120	9,582	328

*Rates are not calculated from 0 to 4 cases because they are unreliable.

**STATE OF WASHINGTON
STD MORBIDITY REPORT - 2000
REPORTED CHLAMYDIA CASES AND INCIDENCE RATES
BY AGE (15-24 YEARS) AND COUNTY**

Table 2

COUNTY	2000 POPULATION		CHLAMYDIA			
	15-19	20-24	15-19	RATE/100,000	20-24	RATE/100,000
Adams	1,396	874	11	788	10	1,144
Asotin	1,496	1,013	8	535	11	1,086
Benton	10,601	7,488	126	1,189	104	1,389
Chelan	4,267	2,984	42	984	43	1,441
Clallam	4,348	3,018	41	943	18	596
Clark	25,905	21,073	240	926	224	1,063
Columbia	309	200	2	*	1	*
Cowlitz	6,992	4,837	6	86	10	207
Douglas	2,280	1,575	24	1,053	16	1,016
Ferry	661	489	4	*	5	1,022
Franklin	3,839	2,722	69	1,797	58	2,131
Garfield	184	95	0	*	0	*
Grant	5,522	3,868	64	1,159	41	1,060
Grays Harbor	4,844	3,267	41	846	34	1,041
Island	4,629	6,409	25	540	56	874
Jefferson	1,573	1,148	14	890	11	958
King	108,999	98,458	1,515	1,390	1,430	1,452
Kitsap	16,539	16,554	209	1,264	194	1,172
Kittitas	4,348	4,907	12	276	32	652
Klickitat	1,516	939	6	396	6	639
Lewis	5,585	3,548	26	466	19	536
Lincoln	706	440	0	*	2	*
Mason	3,508	2,653	59	1,682	26	980
Okanogan	2,840	1,966	28	986	31	1,577
Pacific	1,309	998	6	458	5	501
Pend Oreille	844	555	4	*	1	*
Pierce	52,210	55,778	710	1,360	823	1,475
San Juan	684	444	8	1,170	4	*
Skagit	6,718	4,879	73	1,087	53	1,086
Skamania	789	508	3	*	1	*
Snohomish	41,169	32,339	439	1,066	374	1,156
Spokane	31,556	31,453	266	843	249	792
Stevens	3,276	2,021	12	366	12	594
Thurston	15,176	12,081	161	1,061	148	1,225
Wahkiakum	273	203	1	*	2	*
Walla Walla	5,198	4,616	26	500	28	607
Whatcom	13,827	14,048	89	644	96	683
Whitman	5,930	9,613	24	405	33	343
Yakima	16,548	11,434	301	1,819	271	2,370
STATE TOTAL	418,394	371,495	4,695	1,122	4,482	1,206

*Rates are not calculated from 0 to 4 cases because they are unreliable.

**STATE OF WASHINGTON
STD MORBIDITY REPORT - 2000
REPORTED GONORRHEA CASES AND INCIDENCE RATES
BY SEX AND COUNTY**

Table 3

COUNTY	2000 POPULATION		GONORRHEA			
	MALE	FEMALE	MALE	RATE/100,000	FEMALE	RATE/100,000
Adams	7,921	7,847	1	*	1	*
Asotin	9,768	10,540	0	*	0	*
Benton	69,463	70,914	2	*	4	*
Chelan	31,253	32,116	4	*	2	*
Clallam	33,559	33,992	3	*	4	*
Clark	168,759	173,851	36	21	50	29
Columbia	2,035	2,092	0	*	0	*
Cowlitz	47,293	48,013	5	11	4	*
Douglas	15,961	15,974	1	*	3	*
Ferry	3,782	3,543	1	*	1	*
Franklin	23,186	22,212	1	*	0	*
Garfield	1,159	1,184	0	*	0	*
Grant	35,516	35,184	4	*	3	*
Grays Harbor	33,370	33,542	1	*	1	*
Island	38,494	35,702	5	13	6	17
Jefferson	13,243	13,177	0	*	0	*
King	846,239	857,978	774	91	448	52
Kitsap	118,469	114,052	58	49	75	66
Kittitas	15,955	16,295	2	*	0	*
Klickitat	9,613	9,562	0	*	0	*
Lewis	34,049	34,809	3	*	3	*
Lincoln	4,828	4,813	1	*	0	*
Mason	24,748	23,781	4	*	4	*
Okanogan	19,143	18,836	2	*	0	*
Pacific	10,570	10,806	0	*	0	*
Pend Oreille	5,423	5,481	0	*	0	*
Pierce	357,037	352,409	262	73	274	78
San Juan	6,362	6,383	0	*	0	*
Skagit	49,826	51,162	4	*	2	*
Skamania	5,008	4,918	1	*	0	*
Snohomish	295,481	296,652	108	37	45	15
Spokane	204,695	210,538	48	23	60	28
Stevens	18,892	18,969	0	*	1	*
Thurston	100,428	104,824	11	11	22	21
Wahkiakum	1,901	1,964	0	*	0	*
Walla Walla	27,982	26,876	1	*	0	*
Whatcom	80,216	82,249	6	7	6	7
Whitman	21,659	20,375	1	*	3	*
Yakima	105,966	108,088	54	51	38	35
STATE TOTAL	2,899,252	2,921,703	1,341	46	1,078	37

*Rates are not calculated from 0 to 4 cases because they are unreliable.

STATE OF WASHINGTON
CORRECTED COPY
STD MORBIDITY REPORT - 2000
REPORTED GONORRHEA CASES AND INCIDENCE RATES
BY AGE (15-24 YEARS) AND COUNTY

Table 4

COUNTY	2000 POPULATION		GONORRHEA			
	15-19	20-24	15-19	RATE/100,000	20-24	RATE/100,000
Adams	1,396	874	0	*	1	*
Asotin	1,496	1,013	0	*	0	*
Benton	10,601	7,488	0	*	1	*
Chelan	4,267	2,984	2	*	1	*
Clallam	4,348	3,018	0	*	1	*
Clark	25,905	21,073	25	97	24	114
Columbia	309	200	0	*	0	*
Cowlitz	6,992	4,837	2	*	4	*
Douglas	2,280	1,575	0	*	2	*
Ferry	661	489	2	*	0	*
Franklin	3,839	2,722	0	*	1	*
Garfield	184	95	0	*	0	*
Grant	5,522	3,868	2	*	3	*
Grays Harbor	4,844	3,267	0	*	1	*
Island	4,629	6,409	2	*	5	78
Jefferson	1,573	1,148	0	*	0	*
King	108,999	98,458	192	176	267	271
Kitsap	16,539	16,554	41	248	45	272
Kittitas	4,348	4,907	0	*	1	*
Klickitat	1,516	939	0	*	0	*
Lewis	5,585	3,548	2	*	2	*
Lincoln	706	440	0	*	1	*
Mason	3,508	2,653	4	*	1	*
Okanogan	2,840	1,966	0	*	1	*
Pacific	1,309	998	0	*	0	*
Pend Oreille	844	555	0	*	0	*
Pierce	52,210	55,778	146	280	156	280
San Juan	684	444	0	*	0	*
Skagit	6,718	4,879	1	*	3	*
Skamania	789	508	0	*	0	*
Snohomish	41,169	32,339	28	68	34	105
Spokane	31,556	31,453	36	114	29	92
Stevens	3,276	2,021	0	*	0	*
Thurston	15,176	12,081	4	*	17	141
Wahkiakum	273	203	0	*	0	*
Walla Walla	5,198	4,616	0	*	0	*
Whatcom	13,827	14,048	3	*	2	*
Whitman	5,930	9,613	2	*	2	*
Yakima	16,548	11,434	13	79	34	297
STATE TOTAL	418,394	371,495	507	121	636	171

*Rates are not calculated from 0 to 4 cases because they are unreliable.

**STATE OF WASHINGTON
STD MORBIDITY REPORT - 2000
REPORTED STD CASES AND INCIDENCE RATES BY DISEASE AND COUNTY**

Table 5

COUNTY	POPULATION	CHLAMYDIA			GONORRHEA		
		CASES	RATE/100,000	RANK	CASES	RATE/100,000	RANK
Adams	15,768	29	184	15	2	*	*
Asotin	20,308	20	98	30	0	*	*
Benton	140,377	306	218	7	6	4	18
Chelan	63,369	118	186	13	6	9	13
Clallam	67,551	79	117	27	7	10	11
Clark	342,610	646	189	11	86	25	6
Columbia	4,127	4	*	*	0	*	*
Cowlitz	95,306	122	128	24	9	9	14
Douglas	31,935	52	163	19	4	*	*
Ferry	7,325	9	123	25	2	*	*
Franklin	45,398	189	416	1	1	*	*
Garfield	2,343	1	*	*	0	*	*
Grant	70,700	143	202	9	7	10	12
Grays Harbor	66,912	111	166	17	2	*	*
Island	74,196	116	156	20	11	15	10
Jefferson	26,420	32	121	26	0	*	*
King	1,704,217	4,495	264	4	1,222	72	2
Kitsap	232,521	536	231	5	133	57	3
Kittitas	32,250	60	186	14	2	*	*
Klickitat	19,175	21	110	29	0	*	*
Lewis	68,858	64	93	31	6	9	15
Lincoln	9,641	2	*	*	1	*	*
Mason	48,529	109	225	6	8	16	8
Okanogan	37,979	78	205	8	2	*	*
Pacific	21,376	13	61	33	0	*	*
Pend Oreille	10,904	6	55	34	0	*	*
Pierce	709,446	2,073	292	3	536	76	1
San Juan	12,745	14	110	28	0	*	*
Skagit	100,988	180	178	16	6	6	17
Skamania	9,926	5	50	35	1	*	*
Snohomish	592,133	1,115	188	12	108	18	7
Spokane	415,233	688	166	18	108	26	5
Stevens	37,861	31	82	32	1	*	*
Thurston	205,252	401	195	10	33	16	9
Wahkiakum	3,865	4	*	*	0	*	*
Walla Walla	54,858	84	153	21	1	*	*
Whatcom	162,465	238	146	23	12	7	16
Whitman	42,034	64	152	22	4	*	*
Yakima	214,054	808	377	2	92	43	4
STATE TOTAL	5,820,955	13,066	224		2,419	42	

*Rates are not calculated from 0 to 4 cases because they are unreliable.

STATE OF WASHINGTON
STD MORBIDITY REPORT - 2000
REPORTED STD CASES AND INCIDENCE RATES BY DISEASE AND COUNTY

Table 5 (continued)

COUNTY	2000		PRIMARY & SECONDARY	EARLY LATENT	LATE LATENT	TOTAL ALL SYPHILIS	INITIAL HERPES	RATE/100,000	NGU	RATE/100,000	ACUTE PID	RATE/100,000
	POPULATION											
Adams	15,768		0	0	0	0	2	*	0	*	1	*
Asotin	20,308		0	0	0	0	6	29.5	0	*	0	*
Benton	140,377		0	0	0	0	42	29.9	1	*	0	*
Chelan	63,369		1	0	0	2	13	20.5	1	*	1	*
Ciallam	67,551		0	0	0	0	35	51.8	1	*	3	*
Clark	342,610		1	1	1	3	68	19.8	1	*	6	3.5
Columbia	4,127		0	0	0	0	0	*	0	*	0	*
Cowlitz	95,306		1	0	1	1	16	16.8	0	*	0	*
Douglas	31,935		0	0	0	0	13	40.7	1	*	0	*
Ferry	7,325		0	0	0	0	2	*	0	*	0	*
Franklin	45,398		0	0	0	0	18	39.6	1	*	2	*
Garfield	2,343		0	0	0	0	0	*	0	*	0	*
Grant	70,700		0	0	0	0	12	17.0	0	*	0	*
Grays Harbor	66,912		0	0	0	0	14	20.9	0	*	3	*
Island	74,196		0	1	0	1	19	25.6	4	*	0	*
Jefferson	26,420		1	0	0	1	0	*	2	*	3	*
King	1,704,217		50	16	50	116	745	43.7	818	96.7	100	11.7
Kitsap	232,521		2	0	0	3	83	35.7	39	32.9	37	32.4
Kititas	32,250		0	0	1	1	9	27.9	0	*	2	*
Klickitat	19,175		0	0	0	0	2	*	0	*	0	*
Lewis	68,858		0	0	1	1	7	10.2	1	*	1	*
Lincoln	9,641		0	0	0	0	3	*	0	*	1	*
Mason	48,529		0	0	2	2	17	35.0	1	*	2	*
Okanogan	37,979		0	0	0	0	8	21.1	1	*	0	*
Pacific	21,376		0	0	0	0	0	*	0	*	0	*
Pend Oreille	10,904		0	0	0	0	1	*	0	*	0	*
Pierce	709,446		5	0	13	18	240	33.8	126	35.3	4	*
San Juan	12,745		0	0	0	0	5	39.2	0	*	0	*
Skagit	100,988		0	0	0	0	21	20.8	5	10.0	12	23.5
Skamania	9,926		0	0	0	0	2	*	0	*	0	*
Snohomish	592,133		1	0	3	4	246	41.5	36	12.2	11	3.7
Spokane	415,233		0	0	3	3	94	22.6	58	28.3	29	13.8
Stevens	37,861		0	0	0	0	3	*	0	*	3	*
Thurston	205,252		0	0	1	1	61	29.7	10	10.0	2	*
Wahkiakum	3,865		0	0	0	0	0	*	0	*	0	*
Walla Walla	54,858		0	0	1	1	23	41.9	1	*	3	*
Whatcom	162,465		1	0	0	1	59	36.3	3	*	13	15.8
Whitman	42,034		0	0	0	0	8	19.0	1	*	0	*
Yakima	214,054		3	2	5	10	113	52.8	2	*	1	*
STATE TOTAL	5,820,955		66 Rate:1.1	20 Rate:0.3	85 Rate:1.5	170 **Rate:2.9	2,010	34.5	1,114	38.4 Male Population 2,899,252	240	8.2 Female Population 2,921,703

*Rates are not calculated from 0 to 4 cases because they are unreliable. **Does not include 1 congenital case.

Appendix

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